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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/680,513 | 10/06/2000 | Takahiro Horikoshi | 198322US2CONT | 9594 |

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EXAMINER

BROWN, KHALED

ART UNIT PAPER NUMBER

2851

DATE MAILED: 12/04/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/680,513 | HORIKOSHI ET AL. | |
| | Examiner | Art Unit | |
| | Khaled Brown | 2851 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,14-24,28-35,40-42,44-46 and 49-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-6,16-18,44,49,51,56,59 and 60 is/are allowed.
- 6) ☒ Claim(s) 14,15,19-24,28-35,40-42,45,46,50,52-55,57,58 and 61-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14,15, 19-24, 28-35, 40-42, 45-46, 50, 52-55, 57,58, 61-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi (US 5861944) in view of Taniguchi (US 5721608).

Re clms 14,15, 19-24, 28-35, 40-42, 45-46, 50, 52-55, 57, 58, 61-68: Nishi discloses an exposure method comprising setting an exposure amount (Col 4, line 16) control target value (Col 4, line 18) in accordance with a transmittance (Col 7, line 13) of the optical system and transferring the pattern (R) onto the substrate (W) through the optical system while an exposure amount is controlled (Col 7, lines 29-31) based on the set exposure amount (Col 10, line 22) control target value (Col 11, line 55). Predetermined interval (Nishi Col 11, line 60) and Line width (Nishi Col 11, line 64). However, Nishi does not disclose irradiating the optical system with exposure light on a predetermined condition prior to exposure or a prediction function to determine transmittance.

Taniguchi discloses irradiating the optical system with exposure light on a predetermined condition prior to exposure (Taniguchi Col 13, lines 11-13) and a prediction function (Taniguchi Col 13, lines 34-40) to determine transmittance because

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it allows proper exposure of a wafer. Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to irradiating the optical system with exposure light on a predetermined condition prior to exposure and utilize a prediction function to determine transmittance as taught by Taniguchi in order to exposure of a wafer properly.

Note: the exposure light will inherently clean the optical components of the system.

Response to Arguments

Applicant's arguments filed 10-11-01 have been fully considered but they are not persuasive. The applicant argues (response 10-11-01 p11) with respect to claims 19 and 45 that the combination system of Nishi and Taniguchi does not disclose a prediction function. However, the combination system of Nishi and Taniguchi does disclose a prediction function in that Taniguchi gives the equation (Col 13 lines 34-40) to predict the light amount P and this corresponds to $E_{sub w}$ in Nishi (Col 11, line 62) giving the integrated exposure amount. The applicant argues response (p11) with respect to claim 24 that the combination system of Nishi and Taniguchi does not disclose a measurement interval. However, the combination system of Nishi and Taniguchi does disclose a measurement interval (Nish Col 11, line 60) since measurement at any point implies an interval even if the interval is zero. With respect to the arguments claim 29, the interval is set in accordance with any previous measurement as required by the claim language, even if the inherent interval is constant for multiple measurements. With respect to the argument of claim 46 the interval is set in accordance with an exposure condition since whatever interval the

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measurements disclosed by Nishi are taken at it is in accordance with the exposure amount at that particular point.

Allowable Subject Matter

Claims 1,4,5,49,59,6,60,16,17,18,51,44 and 56 are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Taniguchi et al 5677757, Hiraiwa et al 5699183, and Taniguchi 5841520.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khaled Brown whose telephone number is 703-306-5738. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell E. Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

KB
November 29, 2001


RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800